WHAT WE CLAIM IS:

1. A high-thrust linear motor comprising:

a magnetic member having a plurality of slots formed in series in an axial direction thereof, said slots extending from both sides of said magnetic member in opposite directions intersecting said axial direction in corresponding relation to each other;

coils each wound in a pair of said slots on both sides of said magnetic member; and

field magnets extending in said axial direction at both sides of said magnetic member so as to face an effective conductor portion of each of said coils, said field magnets each having a plurality of pairs of magnetic poles magnetized in said axial direction.

2. A high-thrust linear motor according to claim 1, wherein said coils have a plurality of phases and are wound in respective pairs of said slots in said magnetic member in such a manner that each pair of adjacent phases are different in electrical angle from each other.

3. A high-thrust linear motor according to claim 1 or 2, further comprising:

a cover member for covering said magnetic member and said coils approximately entirely, exclusive of effective conductor portions of said magnetic member and said coils.

3 4. A high-thrust linear motor according to claim 2 or 3, wherein said cover member includes:

a pair of cover elements disposed to cover said magnetic member and said coils approximately entirely; and

connecting means for integrally connecting together said pair of cover elements.

~~4~~ 3 ~~5~~ 3. A high-thrust linear motor according to claim ~~4~~, wherein said connecting means is formed from a material having high thermal conductivity and disposed in contact with or close proximity to said magnetic member.

~~5~~ 4 ~~6~~. A high-thrust linear motor according to claim 3 ~~any one of claims 3 to 5~~, further comprising:

a non-magnetic material filled in a space between said magnetic member and said coils on one hand and said cover member on the other.

7. A method of producing a high-thrust linear motor, said method comprising the steps of:

preparing a magnetic member having a plurality of slots formed in series in an axial direction thereof, said slots extending from both sides of said magnetic member in opposite directions intersecting said axial direction in corresponding relation to each other; and

winding coils in respective pairs of said slots on both sides of said magnetic member while rotating said magnetic member.